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File: DWPI

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TITLE: Hydrolysis of non-metabolisable carbohydrate - using hydrolysing immobilised enzyme (mixt.) and flocculating microorganism (mixt.) in tower reactor

ABTX:

Pref. the substrates can consist of mixts. of different carbohydrate-contg. substrates, e.g. a mixt. of dil. molasses and lactose-contg. syrup, esp. having a total sugar content of at least 14%. Different immobilised enzymes, e.g. invertase and lactase, can be used simultaneously. Different immobilised, esp. flocculating micro-organisms can be used simultaneously. Flocculating strains of lactic acid bacteria and/or mixed colonies, e.g. kefir grains, present in coagulated protein or immobilised lactic acid bacteria can be used in the prodn. of lactic acid. The process can take place in several steps. The process can be anaerobic or micro-aerobic. The physical properties of the enzyme flakes can be affected by the addn. of lysine-rich proteins, esp. albumin.

ABEQ:

Biotechnological, continuous process for the hydrolysis of nonmetabolizable carbohydrates by enzymes and the simultaneous processing of the cleavage products to ethanol with immobilization of the microorganisms and enzymes, characterised in that anaerobically flocculent Zymomonas mobilis are used as microorganisms, the physical properties of the flocculent microorganisms and enzymes are adapted to those of hydrolases as enzymes by their immobilisation, that furthermore microorganisms and enzymes are introduced simultaneously into a tower reactor, furthermore that the substrate is fed continuously to this tower reactor from below, and from the tower the product: is removed continuously over a cylindrical weir of an expanded upper end piece. (7pp)m

ABEQ:

Pref. the substrates can consist of mixts. of different carbohydrate-contg. substrates, e.g. a mixt. of dil. molasses and lactose-contg. syrup, esp. having a total sugar content of at least 14%. Different immobilised enzymes, e.g. invertase and lactase, can be used simultaneously. Different immobilised, esp. flocculating micro-organisms can be used simultaneously. Flocculating strains of lactic acid bacteria and/or mixed colonies, e.g. kefir grains, present in coagulated protein or immobilised lactic acid bacteria can be used in the prodn. of lactic acid. The process can take place in several steps. The process can be anaerobic or micro-aerobic. The physical properties of the enzyme flakes can be affected by the addn. of lysine-rich proteins, esp. albumin.